

What is claimed is:

1 1. A system for allocating resources to enable provision of different
2 levels of service for different users of a network having nodes at which routers are placed
3 to direct information along various paths, the system comprising:

4 a first allocation of resources at a node, the first allocation being made by a
5 first management system external to the node that manages at least part of the network;
6 and

7 a second allocation of resources at the node, the second allocation being
8 made by a second management system having a limited capability compared to the first
9 management system and usable by the node in accordance with priorities determined at
10 the node.

1 2. A system as in claim 1 further comprising a flow control table at
2 the node operating under control of the second management system for storing entries
3 which each include:

4 source addresses representative of at least one source of
5 information arriving at the input port;

6 destination addresses representative of at least one of the
7 destinations to which the arriving information is to be sent from the output
8 port;

9 priority information for each address consisting of a
10 capability of at least two different priorities for controlling the forwarding
11 of information arriving from the source to the destination; and

12 wherein with the priority information is changeable at the node without
13 reference to the first management system.

1 3. A router system as in claim 2 wherein the router system includes a
2 router for switching information and a controller coupled to the router for storing the flow
3 control table and controlling the router in response thereto.

1 4. A router system as in claim 3 wherein the priority information
2 includes default priority information used to control information which does not
3 otherwise have an entry in the flow control table.

1 5. A system as in claim 3 wherein the router has a capacity and not all
2 of the capability of the router is allocated by the controller.

1 6. A system as in claim 5 wherein the unallocated portion of the
2 capacity is reserved for use as a virtual private network.

1 7. A system as in claim 6 wherein the controller manages the flow
2 control table using two application program interfaces.

1 8. A system as in claim 7 wherein the applications program interfaces
2 include a first one for managing default priority information for a longer term usage, and
3 a second one for managing the remaining entries of the flow control table for a shorter
4 term usage.

1 9. A system as in claim 8 wherein the first and second applications
2 program interfaces are under control of a network management system.

1 10. A system as in claim 9 wherein the network management system is
2 controlled by a network service provider.

1 11. A system as in claim 9 wherein the first applications program
2 interface is controlled by a network service provider and the second applications program
3 interface is controlled by a provider of the source of information.

1 12. A system as in claim 11 wherein the controller manages the flow
2 control table using a single applications program interface.

1 13. A system as in claim 12 wherein the applications program interface
2 manages default priority information for longer term usage and manages the remaining
3 entries of the flow control table for shorter term usage.

1 14. In a system for dynamically allocating resources to enable
2 provision of different levels of service for different users of a network having nodes at
3 which routers are placed to direct information along various paths, a method comprising:
4 allocating a first level of service from a remote source;

5 allocating a second level of service from a local source, the second level of
 6 service using resources available from the first level of service;
 7 receiving information at an input port from a source;
 8 storing in a flow control table entries which include source addresses
 9 representative of a source of information arriving at the input port, destination addresses
 10 representative of a destination to which the arriving information is to be sent, and priority
 11 information for each source address, which priority information includes at least two
 12 different priorities; and
 13 forwarding information arriving from the source to the destination address
 14 with a priority based upon the priority information in the flow control table.

1 15. A method as in claim 14 wherein the method further comprises
 2 using a controller coupled to the router to store the flow control table and controlling the
 3 router in response thereto.

1 16. A method as in claim 15 wherein the method further comprises
 2 using default priority information to control arriving information which does not
 3 otherwise have an entry in the flow control table.

1 17. A method as in claim 16 wherein the router has a capacity; and the
 2 method comprises using the controller to allocate less than all of the capacity of the
 3 router.

1 18. A method as in claim 17 wherein the method further comprises
 2 reserving unallocated capacity of the router for use as a virtual private network.

1 19. A method as in claim 18 wherein the method further comprises
 2 using applications program interfaces to allow the controller to manage the flow control
 3 table.

1 20. A method as in claim 19 wherein method further comprises using a
 2 first applications program interface to manage default priority information for longer term
 3 usage, and using a second applications program interface to manage remaining entries of
 4 the flow control table for shorter term usage.

